

I. AMENDMENTS TO THE CLAIMS:

Please cancel claim 2 without prejudice. Kindly amend claims 1, 7, 8, 10 and 12-15, and add new claims 16 and 17 as follows.

The present claims replace all prior versions of claims in the present application.

Listing of Claims:

1. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines, comprising:

a translatory volume difference sensor having a piston arranged in a measuring chamber and a data acquisition device that senses a displacement of the piston;

an evaluating unit connected to the data acquisition device; and

a pressure sensor disposed in the measuring chamber and connected to the evaluating unit such that by means of measured values of the pressure sensor, a correction of a flow amount ascertained from the measured values of the data acquisition device takes place in the evaluating unit, wherein the displacement of the piston is formed by superimposing a portion with constant speed in an opposite direction to a displacement direction during an injection as well as a discontinuous portion during an injection process.

2. (Canceled)

3. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 1, wherein said data acquisition device comprises a sensor to produce a voltage representing a measurement for said displacement of said piston and that continuously senses said displacement of said piston in said measuring chamber.

4. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 1, wherein said piston has a specific weight the same as that of a fluid to be measured.
5. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 1, further comprising a temperature sensor disposed in said measuring chamber and connected to said evaluating unit.
6. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 1, wherein said translatory volume difference sensor comprises a sensor selected from the group consisting of an optical sensor, an inductive sensor, and a sensor that works on an eddy current principle.
7. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, wherein said rotary displacer comprises a gear pump.
8. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, wherein said motor comprises a servo motor having a movement sensor connected to said evaluating unit and to an electronic control unit, whereby a signal of the movement sensor represents a measurement for a speed of said rotary displacer.

9. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 8, wherein said movement sensor comprises a pulse generator disk.
10. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, wherein a hydraulic length from a fuel injection valve to an intake side of said rotary displacer is equal to a hydraulic length to an outlet side of the rotary displacer.
11. (Previously Presented) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 1, wherein the device for measuring is connected between at least one fuel injection valve and a delay time tube.
12. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162 wherein said data acquisition device comprises a sensor to produce a voltage representing a measurement for said displacement of said piston and that continuously senses said displacement of said piston in said measuring chamber.
13. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, wherein said piston has a specific weight the same as that of a fluid to be measured.
14. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, further

comprising a temperature sensor disposed in said measuring chamber and connected to said evaluating unit.

15. (Currently Amended) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines according to Claim 162, wherein said translatory volume difference sensor comprises a sensor selected from the group consisting of an optical sensor, an inductive sensor, and a sensor that works on an eddy current principle.

16. (NEW) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines, comprising:

a translatory volume difference sensor having a piston arranged in a measuring chamber and a data acquisition device that senses a displacement of the piston;

an evaluating unit connected to the data acquisition device; and

a pressure sensor disposed in the measuring chamber and connected to the evaluating unit such that by means of measured values of the pressure sensor, a correction of a flow amount ascertained from the measured values of the data acquisition device takes place in the evaluating unit, wherein the translatory volume difference sensor further comprises a rotary displacer,

the displacer is driven via a motor depending on an adjacent volume difference,

the measuring chamber is disposed in an intake duct that opens into an outlet duct behind, in the flow direction, the translatory volume difference sensor, and

the rotary displacer is arranged in a bypass line to the translatory volume difference sensor,

whereby the rotary displacer is controlled such that during one work cycle the speed of the displacer is constant and essentially corresponds to the average flow over the entire work cycle.

17. (NEW) Device for measuring time-resolved volumetric flow processes of injection processes in internal combustion engines, comprising:

a translatory volume difference sensor having a piston arranged in a measuring chamber and a data acquisition device that senses a displacement of the piston;

an evaluating unit connected to the data acquisition device; and

a pressure sensor disposed in the measuring chamber and connected to the evaluating unit such that by means of measured values of the pressure sensor, a correction of a flow amount ascertained from the measured values of the data acquisition device takes place in the evaluating unit, wherein the piston has a specific weight the same as that of a fluid to be measured.